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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,785	01/25/2002	Robert Hammer	2002-01	8749

7590 08/06/2003

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[REDACTED] EXAMINER

PRUCHNIC, STANLEY J

ART UNIT	PAPER NUMBER
	2859

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/055,785	HAMMER ET AL.
	Examiner Stanley J. Pruchnic, Jr.	Art Unit 2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 May 2003 and 05 June 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-3 and 6-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 9-11 and 14-20 is/are rejected.
- 7) Claim(s) 1-3, 6-8, 12 and 13 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 May 2002 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

- a. The oath or declaration filed with the application papers on 25 Jan 2002 is defective because:

It does not identify the mailing or post office address of each inventor. A mailing or post office address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing or post office address should include the ZIP Code designation. The mailing or post office address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

- b. The oath or declaration submitted on 06 May 2003 (with Paper #7) is defective because:

The specification to which the oath or declaration is directed has not been adequately identified. See MPEP § 601.01(a). The declaration submitted with Paper #7 incorrectly identifies the instant specification because it states an incorrect filing date. The correct filing date is 25 Jan 2002.

Specification

2. The substitute specification filed 5 June 2003 in combination with the page filed 6 May 2003 has been entered.

Claim Objections

3. Claims 1-3, 6-8, 12 and 13 are objected to because of the following informalities:
- In Claim 1, perhaps the claim language should more clearly indicate that --a-- "one end of said substrate" (Lines 3-4) and "the other end of said substrate" (Line 4) are opposed to each other and oriented in the direction in which a heat flow vector component is measured, in order to more clearly describe the invention.

- In Claim 11, Line 3, please delete the first word "object" and replace therefor the word --body-- in order to more clearly describe the invention by using consistent terms.

Claims 2-3, 6-8, 12 and 13 are objected to due to their dependency on Claim 1, incorporating the objected elements.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 15 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In Claim 15, the limitation "said thermocouples are deposited on said plug" is considered to be new matter. The specification discloses a thermopile 12 deposited on a ceramic substrate 18, which is contained in a slotted plug 19 (Page 14, Lines 15-20), but does not disclose that the "thermocouples are deposited on said plug" as claimed by Applicant in Claim 15.

6. Claims 14-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In Claim 14, the limitations "means for

imbedding said first thin film thermocouple in said solid body at said first point" and "means for imbedding said second thin film thermocouple in said solid body at said second point" are considered to be new matter. The specification discloses a slotted plug 19 (Fig. 4) for embedding a thermopile 12, which is made up of thin film thermocouples deposited on a ceramic substrate 18 covered by a plate 23, but it is the same means for embedding all the thermocouples, not two means as claimed by Applicant in new Claim 14.

35 U.S.C. § 112, ¶ 6 states that a claim limitation expressed in means-plus-function language "shall be construed to cover the corresponding structure...described in the specification and equivalents thereof." Because the respectively claimed means for imbedding said thermocouples in said solid body at their respective points is not clearly disclosed in the instant specification, the limitations of 35 U.S.C. § 112, ¶ 6 are not considered to apply to interpretation of the scope claims 14-20.

Although the means for imbedding said thermocouples in said solid body at their respective points disclosed by a particular reference are not identical to the means claimed by Applicant, these limitations are considered to be met, in a broad sense, by any means for imbedding thermocouples in a solid body, including attaching to a surface of a body.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 9, 10 and 11** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: any step of

measuring heat flux in a solid body. It is considered that "consisting of" in the preamble, limits the claim(s) to only the recited steps, but the recited steps in Claim 9 are limited to

- a method of making a heat flux sensor as claimed in Lines 2-6 of Claim 9;
- imbedding the sensor within a solid body as claimed; and
- making electrical connections as claimed in the last line of Claim 9.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 14, 16, 17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by HEDENGREN *et al.* (U. S. Pat. No. 6,084,174, hereinafter HEDENGREN).

HEDENGREN discloses a sensor for measuring temperature differences between a first and a second point within a solid body as claimed by Applicant in Claims 14, 16, 17, 19 and 20 comprising:

Regarding Claim 14: a first and a second thin film thermocouple (Col. 2, Lines 4-27),

means (Col. 2, Lines 24-26; Col. 3, Lines 1-11) for imbedding said first thin film thermocouple in said solid body at said first point,

means for imbedding said second thin film thermocouple in said solid body at said second point, and

means for measuring (Col. 1, Lines 40-63; Col. 4, Lines 7-11) the difference in output potentials of said thin film thermocouples.

Regarding Claim 16: HEDENGREN further discloses the sensor of claim 14 in which said means for imbedding said thermocouples consists of a thin substrate 10 and said thermocouples are deposited (Col. 3, Lines 13-25) on said substrate.

Regarding Claim 17: HEDENGREN discloses the sensor of claim 16 further comprising a thin cover 18 (Fig. 4; Col. 4, Lines 63-67) for said substrate.

Regarding Claim 20: HEDENGREN further discloses the sensor of claim 17 in which the thermal properties of said substrate 10 (Col. 3, Lines 25-37) and said cover 18 (Col. 4, Line 63 through Col. 5, Line 25) match those of said solid body (e.g., the layers {10 and 18} are of materials appropriate for the intended use and are as thin as feasible so that their thermal masses do not interfere with the measurements).

Regarding Claim 19: HEDENGREN further discloses the sensor of claim 16 in which the thermal properties of said substrate 10 match those of said solid body.

Response to Arguments

11. Applicant's arguments, see Paper No. 7, filed 06 May 2003, with respect to the Rejection under 35 U.S.C. § 112(2) of Claims 9-11 have been fully considered, in view of the amendment, but are not persuasive.

Applicant has acknowledged in the Response filed 06 May 2003 (Paper No. 7) that a step of "measuring the thermopile potential" was omitted (in the 7th Paragraph of the "Discussion"), but the amendment to claim 9 is not considered to correct this omission.

Although the Amendment further clarified that the connections are for measuring the potential of the thermopile, none of the claimed steps appear to be directed towards the invention stated in the preamble, but instead describe a method of making and installing a heat flux sensor. There is no step of measuring claimed.

12. Applicant's arguments filed 06 May 2003 (Paper No. 7), with respect to the rejection(s) of claim(s) Claims 1-3 and 6-11 under 35 U.S.C. §103(a) have been fully considered and are persuasive. Therefore, the rejection(s) have been withdrawn.

Allowable Subject Matter

13. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

14. The following is a statement of reasons for the indication of allowable subject matter:

15. Claim 1 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action because the prior art of record fails to teach or fairly suggest a sensor for measuring heat flux in a solid body, comprising:

means for imbedding said substrate and said plate within said solid body, as defined in the claims, in combination with the other limitations, each arranged and functioning as recited in claim 1. Claims 2-3, 6-8, 12 and 13 would be allowable by virtue of their dependency upon claim 1.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related heat flow devices and mounting methods. Thery et al. (U.S. Patent No. 4,717,786) discloses a thermal fluxmeter, which measures heat flux in the direction across the thin layer of the supporting substrate or film 1, as described in the article provided by Applicant and made of record herein.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanley J. Pruchnic, Jr. whose telephone number is (703) 306-5474. The examiner can normally be reached on weekdays (Monday through Friday) especially from 8:30 AM to 11:00 AM and 12:00 PM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on (703) 308-3875.

The **Official FAX** number for Technology Center 2800 is (703) 872-9318 for **regular** communications and (703) 872-9319 for **After Final** communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2800 receptionist whose telephone number is (703) 308-0956. The Technology Center 2800 Customer Service fax phone number is (703) 872-9317.



DIEGO F. F. GUTIERREZ
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Stanley J. Pruchnic, Jr.
29 July 2003